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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/796,811	03/09/2004	Barry T. Brinks	502724	2081

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EXAMINER	
FRISTOE JR, JOHN K	

ART UNIT	PAPER NUMBER
3751	

DATE MAILED: 11/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/796,811	BRINKS ET AL.	
	Examiner	Art Unit	
	John K. Fristoe Jr.	3751	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 October 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-44* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-44* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *13 October 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

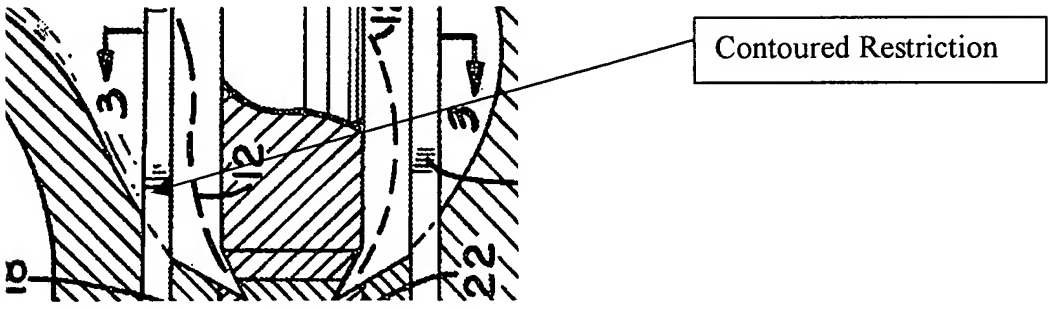
1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

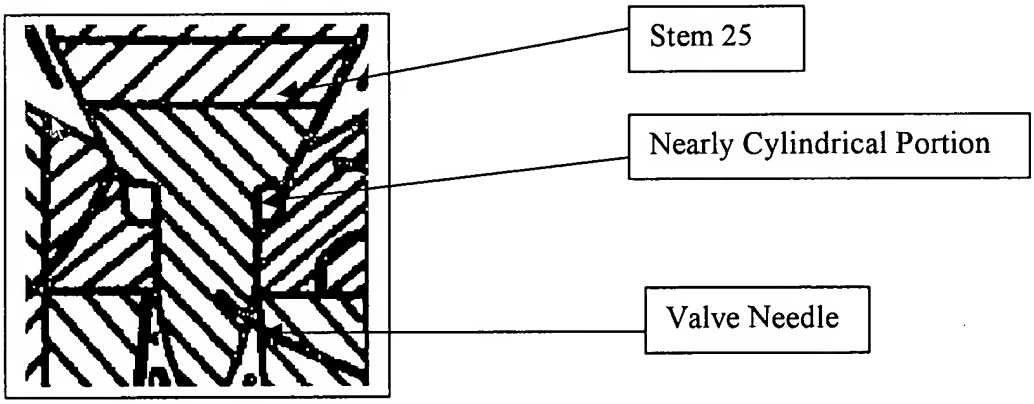
Response to Arguments

1. Applicant's arguments, see Page 12, paragraphs 2 and 3, filed 10/13/2005, with respect to the drawings have been fully considered and are persuasive. The objection of drawings has been withdrawn.

2. Applicants' arguments filed 10/13/2005 have been fully considered but they are not persuasive. Applicants' argue that claims 10, 28, and 39 are now in compliance with 35 U.S.C. 112, second paragraph, the examiner disagrees. It is still unclear to the examiner how a flow path can pass through an outlet flange but be as far away as possible from that flange as well as making the flow path eccentric results in the flow path being as far away as possible. Applicants' also argue that the "step" of Platt is not a "nozzle throat", the examiner disagrees. When performing a structural comparison of Applicants' claimed invention and Platt, the "stepped portion" of Platt anticipates the "nozzle throat" of Applicants' claimed invention. Applicants' also argue that Platt does not disclose a curved contoured portion upstream of the nozzle, the examiner disagrees. The following figure was extracted from figure 1 of Platt and clearly shows a contoured restriction upstream of the nozzle in the nozzle area:



Applicants' further argue that Platt does not anticipate claim 17 because the examiner did not point out that the "nearly cylindrical portion" of the valve needle is "upstream of an axial location where the valve needle begins to taper" the examiner disagrees. The examiner simply pointed out the corresponding structure that is recited within Applicants' claims. Clearly one looking at Platt could ascertain that the nearly cylindrical portion of Platt is upstream of the tapered portion of the valve needle. Platt does disclose a valve needle having a nearly cylindrical portion upstream of an axial location where the valve needle begins to taper as seen in the following figure extracted from figure 1 of Platt:



Finally Applicants' argue that Bohaychuk does not teach an inlet passage having a cross sectional area adjacent the inlet that is smaller than the cross section area of the inlet pipe, the examiner disagrees. In figure 9 of Bohaychuk the inlet has a throttled area and a flange that is "adapted to connect to a pipe". The flange is capable of connecting to a pipe that is the same cross sectional area of that of the enlarged cross sectional area of the inlet near the flange which would be larger than the cross sectional area of the throttled area.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 10, 28 and 39 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is unclear to the examiner what is meant by "the inlet passage starts adjacent to the inlet pipe in a manner that a flow path is eccentric to the inlet pipe such that the flow path at the location adjacent the inlet is as far away as possible from an outlet flange of the outlet".

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-8, 11, 16, 17, 19-23, 35, 37, 38, 39 as far as it is definite, 40, 42, and 44 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Pat. No. 4,413,646 (Platt et al.). Platt et al. disclose a control valve body comprising an inlet (13) having an inlet passage (15), a nozzle area (the portion of element 15 near element 18 in figure 1), a nozzle throat (the step on the contoured surface above element 23), an outlet (17), a diffuser (element 15 near outlet 17) wherein the pressure gradient drops to near zero, the initial start position (23) down stream of the throat, an outlet flange (the flange adjacent outlet 17 in figure 1), wherein the diffuser (element 15 near outlet 17), wherein the contoured restriction (portion of element 15 above neck 23 in

figure 2) has a pressure gradient that starts near zero and then goes negative, wherein the inlet passage (15) has a curved flow path (12), wherein the inlet passage (15) is shaped such that the radius of curvature measured orthogonal to the flow direction is smaller on the side of the flow path that has a smaller radius of curvature measured parallel to the flow direction than the side of the flow path that has a larger radius of curvature measured parallel to the flow direction (figure 1), wherein the cross section of the inlet passage (15) is elliptical (wherein passage 15 begins to curve), a valve needle (26) having a nearly cylindrical portion (portion that connects to stem 25), further comprising an outward step (corner near element 23), wherein the inlet (13) is orthogonal to outlet (17), a relatively thick boundary portion (the portion of body 11 near element 18), wherein the area gradient curves inwardly and then outwardly, and wherein the cross sectional area of the curved inlet passage starts adjacent the inlet piping (15) in a manner such that a gas flow path is eccentric to the inlet pipe (15) in such that an inlet flow path is as far away as possible from an outlet flange (adjacent outlet 17) of the outlet (17).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 9, 10 as far as it is definite, 27, 28 as far as it is definite, 29-34, and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 4,413,646 (Platt et al.) in view of U.S. Pat. No. 6,105,614 (Bohaychuk et al.). Platt et al. discloses the above described control valve comprising an inlet (13) having an inlet passage (15), a nozzle area (the portion of

element 15 near element 18 in figure 1), a nozzle throat (the step on the contoured surface above element 23), an outlet (17), a diffuser (element 15 near outlet 17) wherein the pressure gradient drops to near zero, the initial start position (23) down stream of the throat, an outlet flange (the flange adjacent outlet 17 in figure 1), wherein the diffuser (element 15 near outlet 17), wherein the contoured restriction (portion of element 15 above neck 23 in figure 2) has a pressure gradient that starts near zero and then goes negative, wherein the inlet passage (15) has a curved flow path (12), wherein the inlet passage (15) is shaped such that the radius of curvature measured orthogonal to the flow direction is smaller on the side of the flow path that has a smaller radius of curvature measured parallel to the flow direction than the side of the flow path that has a larger radius of curvature measured parallel to the flow direction (figure 1), wherein the cross section of the inlet passage (15) is elliptical (wherein passage 15 begins to curve), a valve needle (26) having a nearly cylindrical portion (portion that connects to stem 25), further comprising an outward step (corner near element 23), wherein the inlet (13) is orthogonal to outlet (17), a relatively thick boundary portion (the portion of body 11 near element 18), wherein the area gradient curves inwardly and then outwardly, and wherein the cross sectional area of the curved inlet passage starts adjacent the inlet piping (15) in a manner such that a gas flow path is eccentric to the inlet pipe (15) in such that an inlet flow path is as far away as possible from an outlet flange (adjacent outlet 17) of the outlet (17) but lacks the inlet connected to an inlet pipe having a cross sectional area and wherein the inlet passage has a cross sectional area at a location adjacent the inlet that is smaller than the cross sectional area of the inlet pipe. Bohaychuk et al. teaches a control valve comprising a inlet (4) that has a cross sectional adjacent the inlet (4) that is smaller than the cross sectional area of the inlet pipe (in figure 9 the inlet 4 enlarges near the

flange which enables it to be connected to a larger pipe. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the control valve of Platt et al. by enlarging the inlet pipe adjacent the flange as taught by Bohaychuk et al. in order to connect the control valve to a larger pipe.

9. Claims 13 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 4,413,646 (Platt et al.) in view of U.S. Pat. No. 4,721,284 (Bankard). Platt et al. discloses the above described control valve comprising an inlet (13) having an inlet passage (15), a nozzle area (the portion of element 15 near element 18 in figure 1), a nozzle throat (the step on the contoured surface above element 23), an outlet (17), a diffuser (element 15 near outlet 17) wherein the pressure gradient drops to near zero, the initial start position (23) down stream of the throat, an outlet flange (the flange adjacent outlet 17 in figure 1), wherein the diffuser (element 15 near outlet 17), wherein the contoured restriction (portion of element 15 above neck 23 in figure 2) has a pressure gradient that starts near zero and then goes negative, wherein the inlet passage (15) has a curved flow path (12), wherein the inlet passage (15) is shaped such that the radius of curvature measured orthogonal to the flow direction is smaller on the side of the flow path that has a smaller radius of curvature measured parallel to the flow direction than the side of the flow path that has a larger radius of curvature measured parallel to the flow direction (figure 1), wherein the cross section of the inlet passage (15) is elliptical (wherein passage 15 begins to curve), a valve needle (26) having a nearly cylindrical portion (portion that connects to stem 25), further comprising an outward step (corner near element 23), wherein the inlet (13) is orthogonal to outlet (17), a relatively thick boundary portion (the portion of body 11 near element 18), wherein the area gradient curves inwardly and then outwardly, and wherein the cross sectional

area of the curved inlet passage starts adjacent the inlet piping (15) in a manner such that a gas flow path is eccentric to the inlet pipe (15) in such that an inlet flow path is as far away as possible from an outlet flange (adjacent outlet 17) of the outlet (17) but lacks the valve needle has one of a conical step and a spherical step in the outside diameter of the valve needle, the one of the conical step and the spherical step adapted to contact the nozzle throat to provide tight shutoff of gas flow in a fully closed valve position. Bankard teaches a control valve comprising a valve needle having a conical section (52) and a spherical section (50). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the control valve of Platt et al. by making the needle with a conical portion and a spherical section as taught by Bankard in order to help the needle seal better in the throat by having a spherical contact surface.

10. Claims 12, 14, 15, 18, 25, 26, and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 4,413,646 (Platt et al.) in view of U.S. Pat. No. 4,707,278 (Breyer et al.). Platt et al. discloses the above described control valve comprising an inlet (13) having an inlet passage (15), a nozzle area (the portion of element 15 near element 18 in figure 1), a nozzle throat (the step on the contoured surface above element 23), an outlet (17), a diffuser (element 15 near outlet 17) wherein the pressure gradient drops to near zero, the initial start position (23) down stream of the throat, an outlet flange (the flange adjacent outlet 17 in figure 1), wherein the diffuser (element 15 near outlet 17), wherein the contoured restriction (portion of element 15 above neck 23 in figure 2) has a pressure gradient that starts near zero and then goes negative, wherein the inlet passage (15) has a curved flow path (12), wherein the inlet passage (15) is shaped such that the radius of curvature measured orthogonal to the flow direction is

smaller on the side of the flow path that has a smaller radius of curvature measured parallel to the flow direction than the side of the flow path that has a larger radius of curvature measured parallel to the flow direction (figure 1), wherein the cross section of the inlet passage (15) is elliptical (wherein passage 15 begins to curve), a valve needle (26) having a nearly cylindrical portion (portion that connects to stem 25), further comprising an outward step (corner near element 23), wherein the inlet (13) is orthogonal to outlet (17), a relatively thick boundary portion (the portion of body 11 near element 18), wherein the area gradient curves inwardly and then outwardly, and wherein the cross sectional area of the curved inlet passage starts adjacent the inlet piping (15) in a manner such that a gas flow path is eccentric to the inlet pipe (15) in such that an inlet flow path is as far away as possible from an outlet flange (adjacent outlet 17) of the outlet (17) but lacks a tapered transition between the valve stem having a smaller diameter and the nearly cylindrical area. Breyer et al. teach a control valve comprising a valve head (18) having a cylindrical portion (near section 16 in figure 2), a tapered section (the angled portion below the cylindrical portion in figure 1), a valve stem (19) having a smaller diameter, and wherein the nearly cylindrical portion (below section 16 in figure 1) having a length to diameter ration of less than one. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the valve head of Platt et al. by reducing the diameter of the valve stem and having a tapered transition from the valve head to the valve stem as taught by Breyer et al. in order to decrease the throttling caused by the fluid passing by a valve stem with a large diameter.

11. Claim 43 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 4,413,646 (Platt et al.) in view of U.S. Pat. No. 3,889,537 (Khuzaie). Platt et al. discloses the

above described control valve comprising an inlet (13) having an inlet passage (15), a nozzle area (the portion of element 15 near element 18 in figure 1), a nozzle throat (the step on the contoured surface above element 23), an outlet (17), a diffuser (element 15 near outlet 17) wherein the pressure gradient drops to near zero, the initial start position (23) down stream of the throat, an outlet flange (the flange adjacent outlet 17 in figure 1), wherein the diffuser (element 15 near outlet 17), wherein the contoured restriction (portion of element 15 above neck 23 in figure 2) has a pressure gradient that starts near zero and then goes negative, wherein the inlet passage (15) has a curved flow path (12), wherein the inlet passage (15) is shaped such that the radius of curvature measured orthogonal to the flow direction is smaller on the side of the flow path that has a smaller radius of curvature measured parallel to the flow direction than the side of the flow path that has a larger radius of curvature measured parallel to the flow direction (figure 1), wherein the cross section of the inlet passage (15) is elliptical (wherein passage 15 begins to curve), a valve needle (26) having a nearly cylindrical portion (portion that connects to stem 25), further comprising an outward step (corner near element 23), wherein the inlet (13) is orthogonal to outlet (17), a relatively thick boundary portion (the portion of body 11 near element 18), wherein the area gradient curves inwardly and then outwardly, and wherein the cross sectional area of the curved inlet passage starts adjacent the inlet piping (15) in a manner such that a gas flow path is eccentric to the inlet pipe (15) in such that an inlet flow path is as far away as possible from an outlet flange (adjacent outlet 17) of the outlet (17) but lacks having an initial length of the outlet pipe connected to the diffuser haring a smaller inner diameter than the outlet pipe inner diameter, thereby extending the diffuser. Khuzaie teaches an outlet pipe having a initial length of the outlet pipe (28) having a smaller inner diameter than the outlet pipe inner

diameter (figure 3, wherein element 32 is pointing). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the control valve of Platt et al. by connecting an outlet pipe that extends the diffuser as taught by Khuzaie in order to decrease turbulence that may occur in the pipe transition.

Conclusion

12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John K. Fristoe Jr. whose telephone number is (571) 272-4926. The examiner can normally be reached on Monday-Friday, 7: 00 a.m-4: 30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Justine R. Yu can be reached on (571) 272-4835. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

John K. Fristoe Jr.
Examiner
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JKF

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11/18/05